M/023/007

STEFFEN ROBERTSON AND KIRSTEN
Consulting Engineers

March 3, 1988
SRK Project No. 13701

RECEIVED
MAR 14 1988
DIVISION OF
OIL, GAS & MINING

Division of Environmental Health
Water Pollution Control Bureau
288 North 1460 West
P.O. Box 16690
Salt Lake City, Utah 84116-0690

Attention: Mr. Don A. Ostler, P.E.

RE: TINTIC PROJECT PLAN REVIEW COMMENTS, FEBRUARY 29, 1988

Dear Mr. Ostler,

This letter addresses our review of the comments dated February 29, 1988 that were not presented in our letter dated March 1, 1988 or were not discussed in the telephone conference call with your department on March 1, 1988. Comments and responses presented in our March 1, 1988 letter are referenced as such and not repeated in this letter.

Item 1: Presented in SRK letter dated March 1, 1988.

Item 3: Drawing to be submitted March 11, 1988.

Item 4: Data to be forwarded March 7, 1988.

Item 7: Pond sizes confirmed.

Item 9: Presented in SRK letter dated March 1, 1988.

Item 11: Operating levels will be held to a maximum of three ft above the bottom of the ponds.

Item 13: A berm will be constructed around the storage area. The containment capacity of the berm will be 1.5 times the volume to be stored.

Item 14: We do not agree that a pond should be shut down in the event of a "leak" being detected with no qualification or quantification of what constitutes a leak. We recommend that the liner performance criteria proposed by the USEPA in the Proposed Liner and Leak Detection Rule (Ref. 1 and 2) be used to establish monitoring criteria. The Proposed Liner and Leak Detection Rule does not consider a single detection of leakage to trigger action, but rather bands of leakage rates with appropriate responses for each leakage band. Based on the USEPA guidelines presented in References 1 and 2, the

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following leakage bands are presented for the Tintic Project. It should be noted that these rates were based on the area of the pond bottom and omitted from the liner areas up the side slopes. (Section 2.2 of Reference 2 has been forwarded to you. This section contains the guidelines used to develop the recommended leakage band presented below).

a) 0-10 gallons per day (gpd) - Record volumes in log book.

b) 10-100 gpd - Record volumes and sample for pH and CN^-. Report to the State Division of Environmental Health once per month.

c) 100-400 gpd - Increase report to state to once per week.

d) 400-900 gpd - Reduce level in ponds so as not to exceed capacity of the leak detection system and exert a hydraulic head on the lower liner. Submit a report to the state with a plan of action to locate and repair the leaks.

e) Greater than 900 gpd - Discontinue use of the pond until the leak is found and repaired.

Ranges a) and b) are based on the anticipated leakage from a well construction liner system. Range c) is based on the capacity of the leak detection sump from which the solutions are pumped. This range sould be adjusted depending upon dimensions of the as-built sump area. Range d) is based upon the total capacity of the leak detection system in the bottom of the pond. As long as total quantities pumped out on a daily basis does not exceed the system's capacity, the hydraulic head of the pond is not applied to the lower liner. Therefore, the leak detection system still acts as a hydraulic break and the lower liner functions as hydraulic barrier for controlling the solutions within the system.

Reference 1: USEPA, "Notice of Proposal Rule Making, Liners and Leak Detection for Hazardous Waste Land Disposal Units", Federal Register, Volume 52, No. 103, May 29, 1987a, pp 20218-20311.

Reference 2: Background Document: Proposed Liner and Leak Detection Rule, EPA/530-SW-87-015, prepared by GeoServies Inc., May 29, 1987b.

Item 15: The first letter of your review indicated only that the contaminated material will be disposed of in an approved area. We agreed with this; however, there were no stipulations requiring North Lily Mining Inc. to formulate disposal procedures as part of the construction plans or specifications. The handling of spills and cleanup were outlined in the "Notice of Intent" submitted to the Department of Oil, Gas and Mining (DOGM). In general, contaminated materials will be disposed of in the heap leach pad area, or neutralized and left in place. If disposal is to be in the heap leach pad area, chemical compatability will be checked prior to disposal.

Item 16: The procedures for close down are presented in the SRK design report and the "Notice of Intent" submitted to the DOGM. This should not be inclusive of the construction permit, but rather outlined as a provision in the operating permit, unless the construction permit is also the operating permit. It is SRK's understanding that the bond posted with DOGM by North Lily is sufficient for proper heap rinsing, grading, and topsoil placement in closing the project.

Item 17: Agreed.

Item 18: The rinsed ore is to be graded to promote runoff from the surface in a controlled manner. The material will be covered with topsoil and reclaimed as outlined in the "Notice of Intent". An "impermeable" layer is not required or proposed because of the inert nature of the rinsed ore (SRK letter dated January 20, 1988 to Mr. C. Dietz).

Item 19: Refer to comments under Item 16 above.

Item 20 and 21: No revisions are being made until an agreement on the liner system is reached.

Item 23: Agree.

Item 24: Agree.

Item 25: See Item 1 above.

Item 26: Differential settlement is not a concern due to the relative uniform and consistent materials underlying the site. Also, the heap will apply a relatively uniform loading on the subsoils.

Item 27: Specification in Section 9.0 as submitted provide for good control of moisture content in the compacted material as well as control of the moisture application and mixing procedures. The specifications presented are typical to good construction practice for soil placement and compaction.

Item 28: Agreed.

Item 29: Drawings will be submitted upon agreements reached as referenced in Item 1 above.

Item 30: Agreed.

Heap leach liner systems (pages 5, 6, and 7): Refer to Item 1 above.

We hope the above information sufficiently answers your additional questions and concerns about the project. We understand that the liner system is still under review and that additional correspondence may be necessary to finalize the details. Once the details are agreed upon, the drawings and specifications will be submitted for your review and approval.

Sincerely,

STEFFEN ROBERTSON AND KIRSTEN
(COLORADO) INC.

Jeff Thatcher for

Don A. Poulter, P.E.
Project Engineer

DAP/dkh

cc: Charlie Dietz/Utah Division of Environmental Health
Roge Foisy/Central Utah District Health Department
Dave Wham/Division of Oil, Gas and Mining
Joe Milbourne/North Lily Mining Inc.